Preliminary List of Works in Induced Seismicity Related to Fluid Injection

L-75

December 1981

Alberta
ENVIRONMENT
15th Floor, Oxbridge Place
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Edmonton, Alberta, Canada
T5K 2J6

ALBERTA OIL SANDS ENVIRONMENTAL RESEARCH PROGRAM

RESEARCH REPORTS

These research reports describe the results of investigations funded under the Alberta Oil Sands Environmental Research Program. This program was designed to direct and coordinate research projects concerned with the environmental effects of development of the Athabasca Oil Sands in Alberta.

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Research Management Division
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Preliminary List of Works
in Induced Seismicity
Related to Fluid Injection

AOSERP Report L-75

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91-05123/

The Hon. J.W. (Jack) Cookson
Minister of the Environment
222 Legislative Building
Edmonton, Alberta

Sir:

Enclosed is the report "Preliminary List of Works in Induced Seismicity Related to Fluid Injection".

This report was prepared for the Alberta Oil Sands Environmental Research Program, through its Water System, under the Canada-Alberta Agreement of February 1975 (amended September 1977).

Respectfully,

R. Solodzuk, P. Eng.
Chairman, Steering Committee, AOSERP
Deputy Minister, Alberta Environment

PRELIMINARY LIST OF WORKS

IN

INDUCED SEISMICITY RELATED TO FLUID INJECTION

by

D.T. SNEDDON

D. VAN DE MAAT

for

Alberta Department of Environment
Research Management Division
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December 1981

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INTRODUCTION

This list of papers and articles from professional and learned journals was assembled to provide a point of departure for hydrogeological and geomechanical studies in the Cold Lake Oil Sands. While the list is fairly extensive, it makes no pretext of being exhaustive; although a substantial effort was made to identify any published work that might pertain to the topic. Those titles marked with an asterisk have been reviewed for relevance and are on open file in the Research Management Division.

The authors welcome any comments or corrections that readers may wish to pass on.

1. THEORY: GENERATION AND PROPAGATION OF MICROSEISMS

Aki, K., M. Fehler, & S. Das. 1977 Source mechanism of volcanic tremor; fluid driven crack models and their application to the 1963 Kilavea eruption. Journal of Volcanology and Geothermal Research 2(3): 259-287.

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2. INSTRUMENTATION

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Wood, M.D. Inc. 1979 Analysis of ground tilts associated with hydraulic fracture formation and explosive Injection, Rock Springs, Wyoming, April-August 1978. Report submitted to Sandia Scientific Laboratories, Albuquerque, New Mexico. 91 pp. United States Department of Energy Contract No. EF 77C 03 14 16. See also reports SAND-78-1885 and SAND-78-1886.

5. APPENDIX: INFORMATION RETRIEVAL SYSTEM

5.1 INFORMATION SOURCES

Alberta Department of Environment Library
9820 - 106 Street, 14th Floor (Oxbridge Place)
Edmonton, Alberta

Alberta Department of Energy and Natural Resources Library
9915 - 108 Street, 9th Floor (South Petroleum Plaza)
Edmonton, Alberta

Alberta Oilsands Information Centre
10010 - 106 Street, 6th Floor (Highfield Place)
Edmonton, Alberta

Cameron Library
Sciences, 4th Floor
University of Alberta
Edmonton, Alberta

Cameron Library
Government Documents, 3rd Floor
University of Alberta
Edmonton, Alberta

Hardy & Associates (1978) Ltd.
4810 - 93 Street
Edmonton, Alberta

5.2 KEYWORDS

These were words used for "Induced Seismicity Related to Fluid Injection" (19 pp.) and for "Acoustic emission" (25 pp.). These are both partial works and not completed searches.

acoustic (emission, propagation, waves)
fracture/ing
geophysics - (rock properties)
hydraulic (cracking, fracturing)
injection (fluid, gas, water)
midroacoustic
microseisms/ic
natural gas wells, (hydraulic fracturing)
oil (fields, sands, wells)
oil well production (flooding, thermal)
rock-fracture
seismic waves - propagation
seismology
steam injection

5.3 AUTHORS

(useful for further searching)

Byerlee, J.D.
Hardy, H.R. Jr.
Holzhausen, G.R.
Keck, L.J.
Kintzinger, P.R.
Koerner, R.M.
Lockner, D.A.
McCann, R.P.
Power, D.V.
Schuck, L.Z.
Schuster, C.L.
Witherspoon, P.A.
Wood, M.D.

5.4 ABSTRACTS

Applied Science and Technology Index
H.W. Wilson Company,
New York, N.Y.

Engineering Index, Inc.
United Engineering Centre
New York, N.Y.

EPA Publications Bibliography
United States Environmental Protection Agency
Office of Planning and Management
Washington, D.C.

Geophysical Abstracts
Geoabstracts Ltd.
University of East Anglia
Norwich, England

Geotechnical Abstracts
German National Society of Soil Mechanics and Foundation Engineering
Essen, Germany

Petroleum Abstracts
Information Services Department
University of Tulsa, Tulsa, Oklahoma

United States Government Reports Announcements and Index
NTIS United States Department of Commerce

United States Government Published Monthly Catalogue
Superintendent of Documents
United States Government Printing Office
Washington, D.C.

(Alberta Department of Environment Periodicals KWIC Index)
(Alberta Department of Energy and Natural Resources KWOC Index)

5.5 COMPUTER SEARCHES

BHR Fluid Engineering Abstracts (Fluidex)

Key Search Words
1. (steam or fluid) and (all inject or all stimulat)
2. hydraulic and all fracture
3. all seism or all acoustic or all sonic or sonor

Combine 1 or 2 and 3.

Alberta Oilsands Information Centre Computer Holdings

Key search words: seismic method or steam injection or hydraulic fracturing

Engineering Index

Key search words (same as BHRA Fluid Engineering Abstracts (Fluidex)

Geoarchive

Key search words - (same as BHRA Fluid Engineering Abstracts (Fluidex)

Georef

Key search words (same as BHRA Fluid Engineering Abstracts (Fluidex)

NTIS

Key search words (same as BHRA Fluid Engineering Abstracts (Fluidex)